AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claim 1. (Currently Amended) A method for manipulating an intrinsic strain of a cell comprising culturing the cell on a substrate or in a medium, thereby forming a cultured cell; and administering to the cultured cells either *in vivo* or *in vitro* a compound that resets the intrinsic strain of the cell ~~in order to modulate extracellular matrix synthesis, secretion, stiffness, organization and/or remodeling, or attachment of the cells to the matrix via intergins or other like cell-matrix attachments~~, wherein the compound is a cytokine that adjusts the intrinsic strain of the cell by modulating a cytoskeletal gene.

Claim 2. (Previously Presented) The method according to claim 1, wherein the cell comprises an *in situ* native tissue.

Claim 3. (Previously Presented) The method according to claim 1, wherein the cell comprises an *in vitro* fabricated tissue engineered construct.

Claim 4. (Previously Presented) The method according to claim 3, wherein the tissue engineered construct is a human tendon internal fibroblast (HTIF)-populated bioartificial tendon or other fibroblast from another connective tissue.

Claim 5. (Previously Presented) The method according to claim 3, wherein the compound is added during or after the tissue engineered construct is fabricated.

Claim 6. (Previously Presented) The method according to claim 1, further comprising applying a mechanical external strain to the cell.

Claim 7. (Previously Presented) The method according to claim 6, wherein the mechanical external strain is comprised of uniaxially loading a tissue engineered construct by placing loading posts beneath a well of a culture plate and applying a vacuum to deform a flexible membrane downward so as to apply a uniaxial strain along a long axis of the tissue engineered construct.

Claims 8 – 12 (Cancelled).

Claim 13. (Previously Presented) The method according to claim 1, wherein the cytoskeletal protein is selected from the group consisting of actin, myosin, α-actinin, vimentin, vinculin, and titin matric metalloproteinases.

Claim 14. (Previously Presented) The method according to claim 13, wherein the cytokine is selected from the group consisting of interleukin-1 beta (IL-1ß) and tumor necrosis factor-alpha (TNF-α).

Claims 15-18 (Cancelled)

Claim 19. (Previously Presented) The method according to claim 1, wherein the cytoskeletal gene is a gene that expresses or regulates the expression of elastin or matrix metalloproteinase.

Claim 20. (Previously Presented) The method according to claim 1, wherein the cytokine is interleukin-1 beta (IL-1β).